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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,286	10/23/2003	David B. Kita	10006.001610	7134

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EXAMINER	
WANG, CLAIRE X	

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,286	KITA ET AL.	
	Examiner	Art Unit	
	Claire Wang	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hyodo et al. (US 6,021,250).

As to claim 1, Hyodo et al. (from this point forward shall be referred to as Hyodo) teaches a method for encoding and decoding a video sequence in which a keyframe (I-frame, Fig 1) is used to bi-directionally predict frames in the sequence (Fig 1), the method comprising: coding the keyframe independently of other frames in the sequence (I-frame is intraframe-coded; Col. 4, line 64); and predicting a prior flame occurring before the keyframe using data from the keyframe (it is clearly shown in Fig. 1 that B-frame is predicted by using I-frame before the I-frame); and predicting a subsequent frame (B-frame; Fig. 1) occurring after the keyframe using the data from the keyframe (Fig. 1 also shows that both B-frame and P-frame can be predicted after the I-frame using the information from I-frame).

As to claim 2, Hyodo teaches wherein the keyframe is selected from a middle of a group of pictures to be encoded (I-frame is intraframe-coded; Col. 4, line 64).

As to claim 3, Hyodo teaches wherein predicting in series all prior frames (P-frame) within the group of pictures that occur before the keyframe (Fig. 1).

As to claim 4, Hyodo teaches wherein predicting in series all subsequent frames within the group of pictures that occur before the keyframe (Fig. 1).

As to claim 5, Hyodo teaches wherein at least one prior intervening frame (B-frame) occurs between the keyframe and the prior frame, and wherein the method further comprises: bi-directionally predicting the prior intervening frame using the data from the keyframe and data from the prior frame (Fig.1 illustrates that B-frames are predicted by the combination of P-frame and I-frame).

As to claim 6, Hyodo teaches wherein at least one subsequent intervening frame occurs between the keyframe and the subsequent frame, and wherein the method further comprises: bi-directionally predicting the subsequent intervening frame using the data from the keyframe and data from the subsequent frame (Fig.1 illustrates that B-frames are predicted by the combination of P-frame and I-frame).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Yu et al. (US 2004/0042548 A1).

As to claim 7, Yu et al. (from this point forward shall be referred to as Yu) teaches a method for allocating bits to a keyframe during video encoding, wherein effects of a plurality of keyframe bit allocations on quality of a predicted frame are measured, and wherein said effects are used to determine a near optimal keyframe bit allocation (Yu teaches of a target bit rates associated with the I-frame, with a range between an upper limit and a lower limit; this is used to improve the efficiency; Paragraph 41) .

As to claim 8, Yu teaches wherein bits not allocated to the keyframe are allocated for use in residue coding to repair imperfections arising during motion-compensated prediction of frames dependent on the keyframe (Paragraph 49 teaches of a bit bank which is used to store extra bits that are not used during encoding, these extra bits may be used to improve the quality of the video during scene changes (i.e. Motion compensation)).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (US 2004/0042548 A1) in view of Hyodo et al. (US 6,021,250).

As to claim 9, Yu teaches wherein encoding the keyframe using a plurality of bit allocations (Paragraphs 51 and 52 teaches of an algorithm of encoding the I-frame using by allocating bit); determining a relative quality of each predicted frame derived from each keyframe bit allocation; interpolating the quality of prediction for each keyframe bit allocation within a certain range; and selecting a specific keyframe bit allocation that achieves a predetermined slope on the quality versus bit allocation curve. Yu, however does not teach decoding each of the plurality of encoded keyframes to produce a plurality of decompressed keyframes; predicting a next predicted frame using each of the plurality of decompressed keyframes. Hyodo teaches of first decoding an I-frame or keyframe and using the I-frame to predict P-frames and B-frames (Hyodo Fig. 1). Therefore, Hyodo's decoding process reads on the claimed decompressing process. Thus it would have been obvious to one ordinarily skilled in the art at the time of the invention to have combined the Yu's bit rate control to improve motion compensation with Hyodo's decoding process because in order to start reproducing a video in midway of the sequence it is necessary to decode the I-frame first (Hyodo Col. 5, lines 4-11).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Emura (US 6,122,662) teaches of a video on demand system capable of performing a high-speed playback at a correct speed using keyframes.

Linzer (US 6,940,909 B2) teaches of a video decoding during I-frame decode at resolution change.

Yoshinari (US 6,567,471 B1) teaches of a system for seamlessly splicing data using keyframes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire Wang whose telephone number is 571-270-1051. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang
10/26/2006

JOSEPH MANCUSO
PATENT EXAMINER